

Introduction

Traditionally, the fishing crafts are hauled on to the beach with manpower after the fishing cruise. Many of the beach-landing centers use manpower for hauling the boats. But the change in beach profile due to changing weather condition makes it extremely cumbersome for hauling the boat using manpower alone. Moreover, the labour force has also been getting scarce in many fishing villages. A wooden winch was developed by the fishermen of Dakshina Kannada, several decades back. The fishermen in Keni Village of Uttar Kannada District worked on this insight and came out with a modified manually working wooden winch/ capstan and named “*Dhowr*”. This device was widely accepted and number of units came up in most of the beach landing fishing villages of Uttar Kannada. With this background, it was felt necessary that a detailed study be conducted to document and report the construction and operation of unique and eco-friendly wooden capstan, “*Dhowr*” along with the benefits to the fishermen.

Methodology

Study area: Marine fishing villages of *Ankola* Taluk and *Kumta* Taluk in Uttara Kannada District were selected for survey as the “*Dhowr*” winches are common in these taluks .

Materials and Construction: The details of the materials used and cost of construction was collected from the carpenters who are involved in the construction of “*Dhowr*” in the *Keni* Village. Dimensions of the capstan were taken from two “*Dhowrs*” each from the selected fishing villages in the *Kumta* and *Ankola* taluk.

Data collection: Local fishermen who uses this traditional winch/ capstan were interviewed at random in each taluk (N=40). Prior informed consent was taken from fishermen for their co-operation in documenting the data pertaining to “*Dhowr*”. The exploratory case study design along with semi- structured interviews were used to document the details of the winch (Swathi Lekshmi *et. al*; 2013)

Economic analysis: In order to analyze the economic benefit of using a ‘*Dhowr*’, a survey was conducted in the beach landing fishing village, *Abbithoda Keni*. Details on the number of craft operating from the beach, number of ‘*Dhowr*’, number of craft hauled up by single ‘*Dhowr*’ and labour expenditure if ‘*Dhowr*’ is not used; were collected.

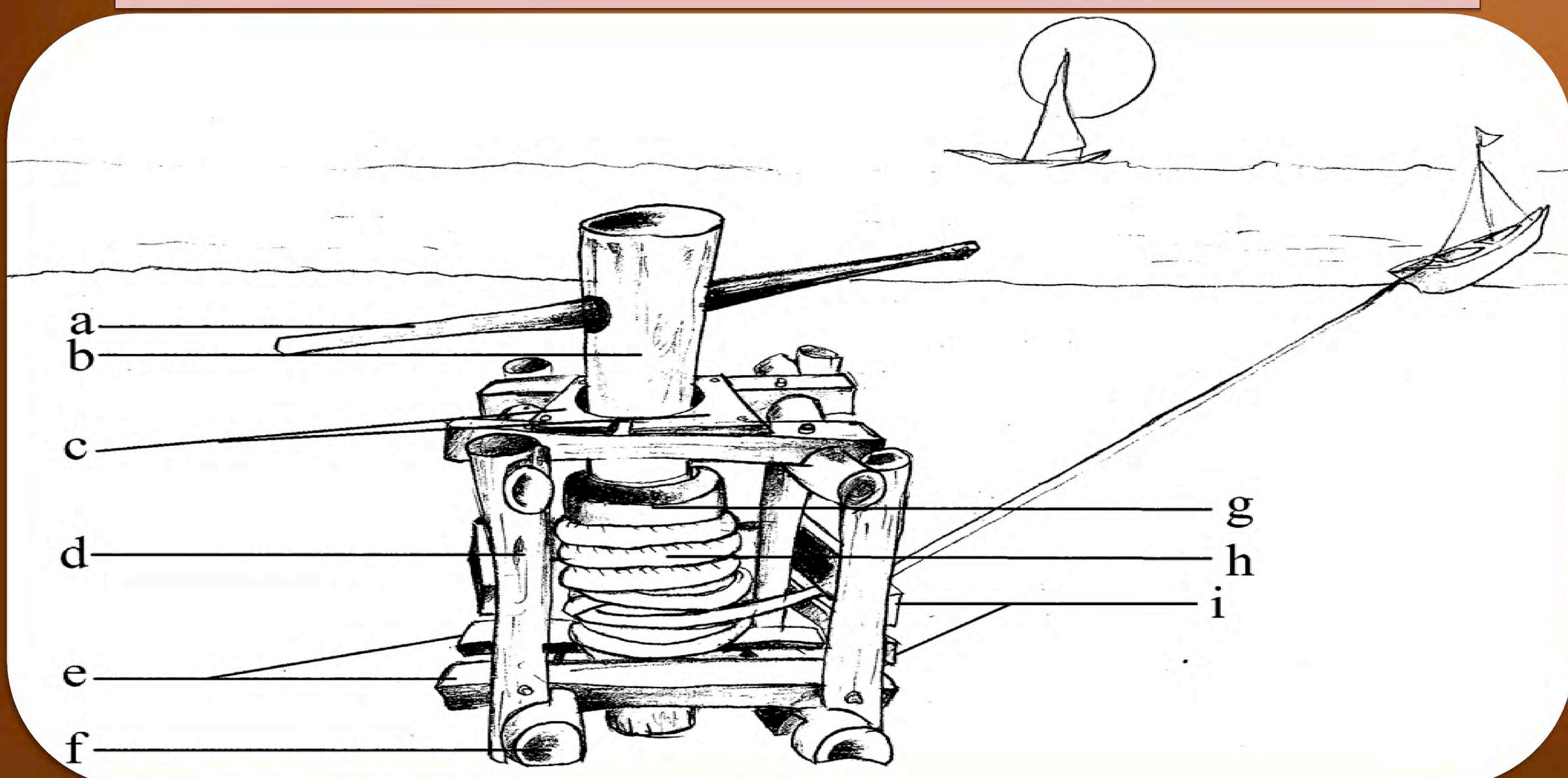
Results

Description of the “Dhowr”

“*Dhowr*” consist of the following parts (Fig 1).

1. A central pivot, which is free to rotate, is a cylindrical timber of varying diameter.
 - i. Upper and lower part with smaller diameter (b)
 - ii. Middle portion with bigger diameter (g)
2. Vertical corner poles (4 numbers) (d)
3. Horizontal connecting poles (8 numbers-4 each on the upper and lower sides of vertical corner poles) (f)
4. Pivot balancing planks (4 numbers- 2 each on the upper and lower sides of Pivot.) (c)
5. Rope regulating planks (2 numbers attached to the middle of vertical corner poles which faces the sea)(i)
6. A handle or the lever for rotating the pivot (a)
7. Towing rope which is wound around the pivot (h)

Fig. 1. Drawing showing the different parts of “*Dhowr*” (Picture Courtesy: Mr. Yogesh Kumar)



“*Dhowr*” are traditional winches which are operated in beach landing centers of Uttar Kannada District, mainly for hauling wooden fishing crafts. The wooden crafts mainly include the large and heavy out-trigger crafts locally known as “*Rampani* Boats”. They are usually weighing between 1.5 to 2 tonnes. These wooden fishing crafts are built out of local timber like Jungle Jack (*Artocarpus hirsuta*) and are usually not coated with antifouling paints nor are they sheathed to protect the timber from attacks by marine borers. In order to protect the timber, these fishing crafts are hauled on to the beach after each fishing cruise. The fishing craft are hauled using the rope attached to the stern and the sides of the craft. Seasoned timber logs are used for the craft to slide on and to prevent it from sinking in the sand. Depending on the size and weight of the boat, 20-25 men are engaged each time a boat has to be hauled ashore.

Operation of the Winch



1. Fishing boat coming back after cruise
2. Towing rope attached to the stern of the fishing craft
3. Fishermen hauling the boat using ‘*Dhowr*’
4. Fishing boat reaching the berthing area of the beach
5. Fishermen removing the catch after reaching the berthing area

Material and Construction

The respondents opined that the traditional winches can be made from locally available timbers like Neem, Jack, Mango, Mahagony and others. But the fishers prefer Babul, *Acacia nilotica* for the construction of ‘*Dhowr*’. The preference was mainly because of the easily availability, low cost and durability of the wood to withstand harsh environmental condition

Economic Analysis

Economic analysis was done to assess the profitability of using the winch in the *Abbithoda Keni* beach landing centre. The construction of the winch requires 14 man days which includes one day for installation. The construction cost of the winch is INR 3,800 which includes the labour cost for construction, cost of timber and other accessories for joining the planks and poles. The respondents opined that the wooden winch has a minimum life span of 2 years depending on the type of wood used. The cost of winch construction is shared by the fishermen groups or fishermen society. Usually a single winch can be used to haul a minimum of 3 Boats. Before the introduction of *Dhowr*, each boat owner was charged up to INR.400 per month for hauling the boats ashore. But with the introduction of *Dhowr*, not only the manpower reduced to 5-6 for hauling a boat on to the shore but also the craft hauling charges was waived off. It was found that each boat owner could save INR 3367 each year by using “*Dhowr*”. It is not just the economic benefit that makes this traditional winch acceptable to the fishermen. The fishers appear to be pleased that this innovation has released them from an arduous and laborious task.

Conclusion

The study has shown light into the design and operation of an eco-friendly boat hauling device which is in operation in the Uttara Kannada District of Karnataka. These environment friendly and useful interventions need to be promoted and supported by the fishermen society and government undertakings in other beach landing fishing villages where these winches are not yet popularized

Acknowledgement

The authors are thankful to the Director, ICAR-CMFRI Cochin, for facilitating the study. The first author is grateful to the fishermen of Ankola and Kumta Taluk for their co-operation during the survey.

Reference

Swathi Lekshmi, P. S., Sasikumar,G., Kemparaju,S., Saravanan,R., and Sampathkumar, G., (2013) Agarala: A traditional fishing boat of Karnataka. Indian Journal of Traditional Knowledge 12 (1):166-168